

WHAT IS CLAIMED IS:

Sub
A1

1. A database managing apparatus comprising:
attribution record group forming means for classifying data, which is requested to be stored into a database, according to attributions defined in the database, and for making plural attribution record groups corresponding to each of the attributions;
data compressing means for compressing the attribution record groups in a unit of each of the attribution record groups; and
file forming means for combining each of the attribution record groups, which are compressed by the data compressing means, and for forming a database file.

2. A database managing apparatus according to claim 1, wherein:
the data compressing means compresses a particular attribution record group, which is to be searched, with a first compression method, and compresses the other attribution record groups, which are different from the particular attribution record group, with a second compression method,

the first compression method compresses the attribution record group so that the attribution record group after being compressed can be decompressed faster than that compressed by using the second compression method, and

the second compression method compresses the attribution record group so that a compression rate is higher than that of the first compression method.

Sub A2

3. A database managing apparatus according to claim 1, further comprising:

data decompressing means for decompressing a particular attribution record group, which is to be searched, when a search request for searching the database file is received; and

searching means for searching for a target record containing a search key in the particular attribution record group,

wherein the data decompressing means further decompresses the other attribution record groups, which are different from the particular attribution record group, when the searching means finds the target record.

4. A database managing apparatus according to claim 3, wherein:

the data decompressing means reads out only the particular attribution record group from the database file, and decompresses only the particular attribution record group, when the search request is received; and

the data decompressing means further decompresses the other attribution record groups, when the searching means finds the target record.

Sub A2

5. A database managing apparatus according to claim 1, further comprising data decompressing means for decompressing a particular attribution record group, which includes a target record to be retrieved, when a retrieve request for retrieving the target record from the database file is received.

6. A database managing apparatus comprising:

attribution record group forming means for classifying data, which is requested to be stored into a database, according to attributions defined in the database, and for making plural attribution record groups corresponding to each of the attributions;

data compressing means for compressing only the other attribution record groups, which are different from a particular attribution record group to be searched, in the plural attribution record groups; and

file forming means for combining the other attribution record groups, which are compressed by the data compressing means, and the particular attribution record group, so as to form a database file.

Sub A 3 7. A database managing apparatus according to claim 6, wherein the data compressing means compresses the other attribution record groups in a unit of each of the attribution record groups; and

8. A database managing apparatus according to claim 6, further comprising:

searching means for searching for a target record containing a search key in the particular attribution record group, and

data decompressing means for decompresses the other attribution record groups, when the searching means finds the target record.

9. A database managing apparatus according to claim 8, wherein:
the data decompressing means reads out only the particular attribution record group from the database file, and decompresses only the particular attribution record group; and
the data decompressing means further decompresses the other attribution record groups, when the searching means finds the target record.

10. A database managing apparatus according to claim 6, further comprising data decompressing means for decompressing a particular attribution record group, which includes a target record to be retrieved, when a retrieve request for retrieving the target record from the database file is received.

Sub 11. A database managing apparatus according to claim 1, wherein the data compressing means further compresses a specific record string, which appears in the attribution record groups frequently compared to the other record string, to reduce a size of the attribution record groups.

12. A database managing apparatus according to claim 6, wherein the data compressing means further compresses a specific record string, which appears in the attribution record groups frequently compared to the other record string, to reduce a size of the attribution record groups.

Sub 13. A database record retrieving apparatus for retrieving a target record to be searched from a database file, which is made up of plural attribution record groups each of which is compressed in a unit of each

of the attribution record groups, the database record retrieving apparatus comprising:

data decompressing means for decompressing a particular attribution record group, which is to be searched, when a search request for searching the database file is received; and

searching means for searching for a target record containing a search key in the particular attribution record group,

wherein the data decompressing means further decompresses the other attribution record groups, which are different from the particular attribution record group, when the searching means finds the target record.

14. A database record retrieving apparatus according to claim 13, wherein:

the data decompressing means reads out only the particular attribution record group from the database file, and decompresses only the particular attribution record group, when the search request is received; and

the data decompressing means further decompresses the other attribution record groups, when the searching means finds the target record.

15. A database record retrieving apparatus according to claim 13, further comprising data decompressing means for decompressing a particular attribution record group, which includes a target record to be retrieved, when a retrieve request for retrieving the target record from the database file is received.

Sub
A5

16. A database record retrieving apparatus for retrieving a target record to be searched from a database file, which is made up of plural attribution record groups wherein only the other attribution record groups, which are different from a particular attribution record group to be searched, are compressed, the database record retrieving apparatus comprising:

data decompressing means for decompressing a particular attribution record group, which is to be searched, when a search request for searching the database file is received; and

searching means for searching for a target record containing a search key in the particular attribution record group,

wherein the data decompressing means further decompresses the other attribution record groups, which are different from the particular attribution record group, when the searching means finds the target record.

17. A database record retrieving apparatus according to claim 16, further comprising:

searching means for searching for a target record containing a search key in the particular attribution record group, and

data decompressing means for decompresses the other attribution record groups, when the searching means finds the target record.

Sub
A6

18. A database record retrieving apparatus according to claim 8, wherein:

the database file is made up so that each of the plural attribution record groups is compressed in a unit of each of the attribution

record groups,

the data decompressing means reads out only the particular attribution record group from the database file, and decompresses only the particular attribution record group; and

the data decompressing means further decompresses the other attribution record groups, when the searching means finds the target record.

19. A method of managing database comprising:

an attribution record group forming step for classifying data, which is requested to be stored in a database, according to attributions defined in the database, and for making plural attribution record groups (A-E) corresponding to each of the attributions;

a data compressing step for compressing the attribution record groups in a unit of each of the attribution record groups; and

a file forming step for combining each of the attribution record groups, which is compressed by the data compressing step, and for forming a database file.

20. A method of managing database according to claim 19, wherein:

the data compressing step compresses a particular attribution record group, which is to be searched, with a first compression method, and compresses the other attribution record groups, which are different from the particular attribution record group, with a second compression method,

the first compression method compresses the attribution record group so that the attribution record group after being compressed can

be decompressed faster than that compressed by using the second compression method, and

the second compression method compresses the attribution record group so that a compression rate is higher than that of the first compression method.

Sub A 7 21. A method of managing database according to claim 19, further comprising:

a data decompressing step for decompressing a particular attribution record group, which is to be searched, when a search request for searching the database file is received; and

a searching step for searching for a target record containing a search key in the particular attribution record group,

wherein the data decompressing step further decompresses the other attribution record groups, which are different from the particular attribution record group, when the searching step finds the target record.

22. A method of managing database according to claim 21, wherein:
the data decompressing step reads out only the particular attribution record group from the database file, and decompresses only the particular attribution record group, when the search request is received; and

the data decompressing step further decompresses the other attribution record groups, when the searching step finds the target record.

Sub
C1

23. A method of managing database according to claim 19, further comprising a data decompressing step for decompressing a particular attribution record group, which includes a target record to be retrieved, when a retrieve request for retrieving the target record from the database file is received.

24. A method of managing database comprising:

an attribution record group forming step for classifying data, which is requested to be stored in a database, according to attributions defined in the database, and for making plural attribution record groups corresponding to each of the attributions;

a data compressing step for compressing only the other attribution record groups, which are different from a particular attribution record group to be searched, in the plural attribution record groups; and

a file forming step for combining the other attribution record groups, which are compressed by the data compressing step, and the particular attribution record group, so as to form a database file.

Sub
A81

25. A method of managing database according to claim 24, wherein the data compressing step compresses the other attribution record groups in a unit of each of the attribution record groups; and

26. A method of managing database according to claim 24, further comprising:

a searching step for searching for a target record containing a search key in the particular attribution record group, and

a data decompressing step for decompresses the other attribution record groups, when the searching step finds the target record.

27. A method of managing database according to claim 26, wherein:
the data decompressing step reads out only the particular attribution record group from the database file, and decompresses only the particular attribution record group; and

the data decompressing step further decompresses the other attribution record groups, when the searching step finds the target record.

28. A method of managing database according to claim 24, further comprising a data decompressing step for decompressing a particular attribution record group, which includes a target record to be retrieved, when a retrieve request for retrieving the target record from the database file is received.

Sub 29. A method of managing database according to claim 19, wherein the data compressing step further compresses a specific record string, which appears in the attribution record groups frequently compared to the other record string, to reduce a size of the attribution record groups.

30. A method of managing database according to claim 24, wherein the data compressing step further compresses a specific record string, which appears in the attribution record groups frequently compared to the other record string, to reduce a size of the attribution record groups.

31. A method of retrieving database record for retrieving a target record to be searched from a database file, which is made up of plural attribution record groups each of which is compressed in a unit of each of the attribution record groups, the method of retrieving database record comprising:

data decompressing step for decompressing a particular attribution record group, which is to be searched, when a search request for searching the database file is received; and

searching step for searching for a target record containing a search key in the particular attribution record group,

wherein the data decompressing step further decompresses the other attribution record groups, which are different from the particular attribution record group, when the searching step finds the target record.

32. A method of retrieving database record according to claim 31, wherein:

the data decompressing step reads out only the particular attribution record group from the database file, and decompresses only the particular attribution record group, when the search request is received; and

the data decompressing step further decompresses the other attribution record groups, when the searching step finds the target record.

33. A method of retrieving database record according to claim 31, further comprising a data decompressing step for decompressing a particular attribution record group, which includes a target record to be retrieved, when a retrieve request for retrieving the target record

from the database file is received.

34. A method of retrieving database record for retrieving a target record to be searched from a database file, which is made up of plural attribution record groups wherein only the other attribution record groups, which are different from a particular attribution record group to be searched, are compressed, the method of retrieving database record comprising:

a data decompressing step for decompressing a particular attribution record group, which is to be searched, when a search request for searching the database file is received; and

a searching step for searching for a target record containing a search key in the particular attribution record group,

wherein the data decompressing step further decompresses the other attribution record groups, which are different from the particular attribution record group, when the searching step finds the target record.

35. A method of retrieving database record according to claim 34, further comprising:

a searching step for searching for a target record containing a search key in the particular attribution record group, and

a data decompressing step for decompresses the other attribution record groups, when the searching step finds the target record.

Sub A9 36. A method of retrieving database record according to claim 26, wherein:

the database file is made up so that each of the plural

attribution record groups is compressed in a unit of each of the attribution record groups,

the data decompressing step reads out only the particular attribution record group from the database file, and decompresses only the particular attribution record group; and

the data decompressing step further decompresses the other attribution record groups, when the searching step finds the target record.

Add A10